

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

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|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Applicant's or agent's file reference 287.00060201 | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/US 03/24090 | International filing date (day/month/year) 01.08.2003 | Priority date (day/month/year) 01.08.2002 |
| International Patent Classification (IPC) or both national classification and IPC C09D167/00 | | |
| Applicant VALSPAR SOURCING, INC. et al | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I Basis of the opinion
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

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| Date of submission of the demand 09.01.2004 | Date of completion of this report 20.10.2004 |
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I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-28 as originally filed

Claims, Numbers

1-15 as originally filed
16-25 received on 05.04.2004 with letter of 05.04.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

| | | |
|-------------------------------|-------------|------------|
| Novelty (N) | Yes: Claims | 16,17 |
| | No: Claims | 1-15,18-25 |
| Inventive step (IS) | Yes: Claims | |
| | No: Claims | 1-25 |
| Industrial applicability (IA) | Yes: Claims | 1-25 |
| | No: Claims | |

2. Citations and explanations

see separate sheet

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1. Claims

1.1. The designations "substantially free", "essentially free", "essentially completely free" do not have a clear meaning and thus render the scope of the claims unclear; the afore-mentioned terms should thus be replaced by the clear definitions given in the description on page 3.

It is noted that an impurity content of 1000 ppm appears rather high; e.g. the mobile BPA content of particular bisphenol-A- containing coatings is lower (cf. e.g. D2, table 4 and paragraph 72).

1.2. It is noted that every can comprises a body and an end portion.

1.3. It is noted that the necessity of a solvent is not mentioned in claims 22 (+subclaims) relating to the coating composition; the claimed subject-matter may thus equally comprise extrusion- or powder coating compositions.

- As to the final coatings contained in the cans, it is observed, that they do not contain any solvent regardless of the coating compositions (and methods) employed (the presence or absence of a solvent in the (intermediate) coating composition would thus not make any difference for the final coatings).

1.4. The term "about" renders the scope of several claims unclear and should be deleted.

1.5. It is noted that according to the present claim wording, polyester (A) and crosslinker C) are only required to be present and need not forcibly react with each other ("composition comprising one ... polyester resin ... formed by the reaction of a polyacid and a polyol ; and a crosslinker" means that the composition comprises a polyester and a crosslinker (crosslinker is added to the final polyester (compare worked examples of present application)) . Moreover, nowhere in the description an indication has been found that the crosslinker is intended to react with the polyester resin (the polyester resin is even said to have a very low acid number (< 4 which includes 0).

As a consequence, every substance having crosslinkable groups is considered as a crosslinker falling under the definition as claimed.

1.6. As to claim 22 directed to the coating compositions, it is noted that the use a product is intended to be employed for (for an Al substrate) cannot be verified on the basis of the product as such and thus does not represent a meaningful limitation of the product.

Moreover, the last three lines of claim 22 do not represent any limitation whatsoever since the features necessary for "adapting a composition for use as a coating for Al" are completely unclear; furthermore, a parameter does not represent a meaningful limitation without a definition of the exact test conditions to be employed (thickness of coating layer etc.); reference to the description is

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unclear (which example?) and, moreover, not admissible.

1.7. Obviously, the term "polyester resin" is intended to encompass block copolymers, such as polyurethane polyesters. In order to clarify the claim and avoid overlap with other block copolymers of the prior art (such as e.g. the epoxy-polyesters), the polyester-polyurethanes should be properly defined in claim 1 as a second class of polymers (A) in claim 1.

V.

For analysis of novelty and inventive step the following documents are referred to:

D1: EP-A-1 277 814 (DSM NV) 22 January 2003 (2003-01-22)
D2: EP-A-0 964 038 (DEXTER CORP) 15 December 1999 (1999-12-15)
D3: US-B-6 235 1021 (SEIBEL LAWRENCE P ET AL) 22 May 2001 (2001-05-22)
D4: WO 00/55267 A (VALSPAR CORP) 21 September 2000 (2000-09-21)
D5: DE 199 12 794 A (GRACE W R & CO) 21 September 2000 (2000-09-21)
D6: DE 40 10 167 A (BASF LACKE & FARBEN) 2 October 1991 (1991-10-02)
D7: US-A-3 954 899 (CHANG WEN-HSUAN ET AL) 4 May 1976 (1976-05-04)
D8: DATABASE WPI Week 9622 Derwent Publications Ltd., London, GB; AN 1996-217374 XP002263882 & JP 08 081652 A (TOYOBO)

2. Novelty

2.1. Document D1 may become pertinent in the regional phase of the present application as, according to the Case Law of several national countries, the content of an application as filed is considered as comprised in the state of the art (for assessment of novelty only) if its filing dates are prior to the filing dates of the application to be examined (e.g. under Art. 54(3) EPC if examination at the EPO was requested).

In D1 cans such as e.g. Al cans (cf. page 5, par. 0043) are coated by compositions comprising a polyester (A) as claimed in combination with a crosslinker C) (in a solvent) (cf. claims and page 7, line 51 in combination with polyesters given in the worked examples and page 5, lines 49, 50). The thus-obtained coatings are "BPA" and "BADGE" free (cf. e.g. claim 1 and bottom of page 2).

2.2 Reference is made to points 1.3. and 1.5. above.

In D2 food cans (from Al) coated with "BPA and arom. glycidyl-ether (BADGE)-free" coatings comprising component (A) and an end-capped epoxy resin (or phenoxy resins, cf. examples 6 and 7) are disclosed. The afore-mentioned end-capped resin has capped epoxy groups which are reactive at higher temperatures

in such a way that (at least partial) crosslinking must occur at higher temperatures. It is noted that the polyesters and post-heating conditions correspond to those employed according to the present application (cf. D2, page 5, line 54: acid number of polyester of 0 - 150mg KOH/g!; final coating is heated to temperatures of up to 550°C for a short time (cf. D2, page 18, par. 94 and table 4; compare with curing conditions of present application, e.g. page 12, paragraph 2 and examples). Even though "substantially" no reaction takes place between A) and C) during manufacture or application of the coating, it is highly unlikely (and thus would have to be proven by the Applicant) that no reaction occurs under the afore-mentioned high temperature conditions.

Furthermore, as explained under point 1.5. above, the mere presence of a crosslinkable substance (no matter whether it is called crosslinker or not) is sufficient to destroy novelty of the present claim wording.

The subject-matter of independent claims 1, 20 and 22 (and subclaims thereof) is thus anticipated by the afore-mentioned disclosure.

2.3. Concerning D4, reference is made to point 1.5. above. According to D4 cans are disclosed coated by compositions containing a polyester A) and a modifying agent which may be an epoxy- or a phenoxy-resin. Moreover, as in D2, (cf. D4, page 48, l. 25-30) a postextrusion heating step (up to 550°C) is disclosed and it appears highly unlikely that under those stringent conditions components A) and C) do not undergo crosslinking. It remains to be shown that the BPA and BADGE-content does not fall under the (amended) ranges as claimed.

Moreover, instead of A) alone, a mixture of a high Tg polyester with a low Tg polyester is employed according to D4 (cf. present claims 8,9).

In view of the aforesaid, the subject-matter of independent claims 1, 20 and 22 (and subclaims) is anticipated until the contrary is proven. It is noted that the procedure of filling a can body with food and sealing it by an end as described in claim 20 is inherent to the preparation of cans filled with food or beverages.

2.4. D3 does not disclose cans but "metal-containers" for food application (which encompasses "cans") coated with a composition containing A) and C) as claimed. The subject-matter of claim 1 is, however, considered novel in view of the afore-mentioned disclosure, since it represents a two-fold selection from two lists of D2 (metal-container and A1).

This holds, however, not true for independent claim 22 directed to the coating composition as such (compare point 1.6. above): The presence of NPG according to D3 is merely optional (one possibility out of 11, cf. D2, par. 41). Since diols other than NPG can be selected from the afore-mentioned list (=selection from one list of components), the subject-matter of claim 22 is anticipated by the

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disclosure of D3.

2.5. It is noted that the coating compositions as claimed according to present claim 22 (cf. also point 1.6. above) are anticipated by every composition containing components (A) and C) (new claim version: without NPG). It is noted that even if the parameter was properly defined, evidence would be required that the parameter is not fulfilled according to the coatings of the prior art in order to establish novelty by this feature.

3. Inventive Step

If the Applicant submits claims which unambiguously relate to novel subject-matter the question of inventive step will arise:

In order to establish an inventive step the Applicant should submit convincing evidence that a technical problem has been solved in an unexpected manner by the feature distinguishing the claimed matter in view of the closest prior art.

Documents D5 and D6 which describe BADGE-free (solution-coated) interior coatings for (Al) food cans comprising a polyester A') and a crosslinker C) can be considered as the closest prior art.

The skilled person who intends to prepare coatings which are additionally free of mobile BPA will prefer crosslinkers C) without any bisphenol-A constituents as starting components such as those embodiments of D5 comprising resol resins C) containing phenols other than bisphenol- A, namely butylphenol, cresol, xylanol etc.(compare D5, last paragraph on page 2). Those are equally employed according to the present application (cf. description, page 8, lines 1 and 16-19). D6 equally describes can coating compositions containing polyesters A)' and components C) other than epoxy resins (such as e.g. bisphenol-A-free resols (cf. top of page 4). It is stressed that the presence of an epoxy resin is not mandatory in D6. The skilled person intending to avoid BPA and BADGE could be sure to obtain BPA- and BADGE - free composition if he started from embodiments without any (bound) bisphenol-A (such as e.g. **example 2 of D6**).

The afore-mentioned bisphenol-A-free embodiments of D5 and D6 thus represent the closest prior art.

The presently claimed subject-matter exclusively differs in that (A) has $T_g < 50^\circ C$, whereas in D5 the T_g of the polyester has not been mentioned and according to D6 the T_g of (A) is somewhat higher than $50^\circ C$ ($T_g = 60^\circ C$).

In the worked examples on file an unexpected technical effect has not been shown to arise from the afore-mentioned distinguishing feature.

Polyesters with $T_g < 50^\circ C$ in combination with crosslinkers C) have been shown to efficiently coat metal (Al) surfaces (cf. e.g. D3). It is known that flexibility of the coating is linked to the T_g of the polyester resin (c.f. e.g. D2, page 6, par. 37 :

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Softness increases if Tg decreases).

It was thus obvious for the skilled person who wanted to prepare further (or more flexible) coatings to replace the polyesters employed according to D5 and D6 by polyesters with lower Tg.

As to dependent claims 16 and 17 it is known to employ acrylate resins with glycidyl groups as a constituent of the afore-mentioned compositions (cf. D3).